

CRETACEOUS FAUNAS FROM SOUTHERN AFRICA
LOWER CRETACEOUS AMMONITES, INCLUDING A NEW
BOCHIANITID GENUS, FROM UMGAZANA, TRANSKEI

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(With 5 figures)

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ABSTRACT

The Umgazana Formation, outcropping at the mouth of the Umgazana River, south of Port St Johns, Transkei, southern Africa, has yielded a small but distinctive ammonite fauna consisting of *Neohoplloceras* sp. and abundant bochianitids referred to a new genus and species, *Umgazaniceras thieuloyi*, together with a specimen of *Bochianites* cf. *renevieri* (Ooster, 1860). The association dates the unit as Upper Valanginian, and contemporaneous with the better-known Uitenhage Formation of South Africa.

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INTRODUCTION

The term Umgazana Formation is applied to the small outcrop of Lower Cretaceous sediments exposed on the Umgazana (Mngazana) River, a little to the south of Port St Johns, Transkei, southern Africa (Rogers & Du Toit 1909; Du Toit 1912, 1920, 1954; Haughton 1969; Truswell 1967). Lithologies present are predominantly dark greenish conglomerates with some bands of coarse sandstone and grit. Occasional limestone lenticles yield invertebrate macrofossils, listed by previous authors as *Baculites*, *Pseudomelania*, *Trigonia* and *Thetironia*. The following plants are recorded: *Onchiopsis*, *Cladophlebis*, *Nilssonia*, *Dictyozamites* and *Otozamites*. The flora indicates the Umgazana Formation to be the equivalent of the better known Uitenhage Formation, and Cooper (1974) suggested the sequence to be of uppermost Valanginian date.

Recent micropalaeontological investigations by McLachlan *et al.* (1977) suggest a Hauterivian/Valanginian date, whilst their samples yielded abundant

ammonites, including a bochianitid assemblage unlike that known from the Uitenhage Formation, or, indeed, anywhere else. The forms present are identified as:

Neohoploceras sp. indet.

Umgazaniceras thieuloyi gen. et sp. nov.

Bochianites cf. *renevieri* (Ooster, 1860)

Together these confirm the previous Upper Valanginian dating of the Umgazana Formation

SYSTEMATIC PALAEOLOGY

Family **Bochianitidae** Spath, 1922

Subfamily Bochianitinae Spath, 1922

Genus *Umgazaniceras* nov.

Type species

Umgazaniceras thieuloyi sp. nov. Upper Valanginian, Umgazana, Transkei, southern Africa.

Etymology

From the Umgazana River, the type locality.

Diagnosis

Bochianitids with well-developed dorsolateral and ventrolateral clavi linked by simple or looped ribs and striae with intercalated ribs and striae between. Sutures rather simple for the subfamily.

Umgazaniceras thieuloyi sp. nov.

Figs 1-2, 3A-D, 4-5

Holotype

SAM-PCT5702 in the South African Museum, Cape Town. From the Umgazana River, Transkei, southern Africa. Umgazana Formation, Upper Valanginian.

Paratypes

SAM-PCT5695-5701, 5703-5, 5709-5710 from the same locality and horizon as above.

Etymology

The species is named for Dr J. P. Thieuloy of Grenoble, who gave the authors much valuable advice in connection with this work.

Diagnosis

As for genus.

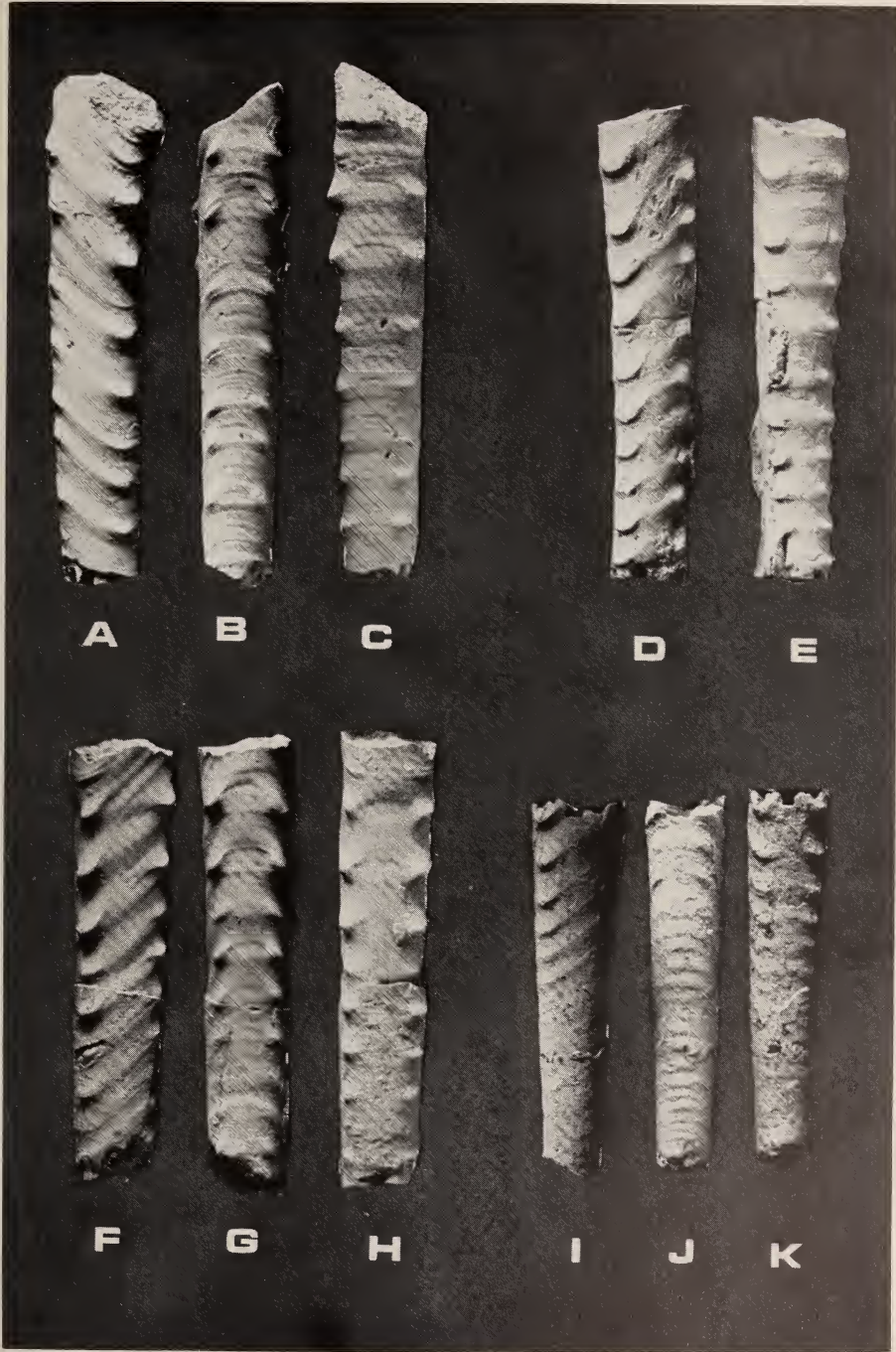


Fig. 1. *Umgazaniceras thieuloyi* gen. et sp. nov.

A-C. Holotype, SAM-PCT5702, lateral, ventral and dorsal views. $\times 3$. D-E. Paratype SAM-PCT5700, lateral and dorsal views. $\times 3$. F-H. Paratype SAM-PCT5704, lateral, ventral and dorsal views. $\times 3,1$. I-K. Paratype SAM-PCT5709, lateral, ventral and dorsal views. $\times 4,6$.

Description

The shell is small, probably not exceeding 150 mm in length in the present material. The whorl section in the early stages of growth is ovoid, higher than wide (Fig. 2A), but eventually becomes subtriangular in intercostal section with a rounded venter and a flattened dorsum (Fig. 5). In some specimens, however, such as SAM-PCT5696 (Fig. 3A-C), the whorl section remains rounded up to large diameters.

At the very smallest diameter preserved, 1.5 mm (Fig. 1I-K), the flanks and dorsum appear devoid of ornament, whilst the venter bears faint convex striae. With increasing diameter, small auricular clavi appear at the dorso-lateral shoulder, together with smaller clavi situated at the inner ventrolateral shoulder and directed obliquely inwards in an apertural direction. Weak, prorsiradiate lateral striae connect the dorsal and ventral clavi across the flanks, dorsum and venter.

The remaining specimens are all adult. Ornament is very variable, but basically follows the following pattern: the dorsal clavi are auricular, situated at the dorsolateral shoulder and may protrude laterally to a considerable extent. They are connected over the dorsum by looped ribs. On the flanks the ventral part of the dorsal clavi merge rapidly into prorsiradiate, narrow and often poorly defined ribs, which in turn connect to the ventral clavi situated at the inner ventrolateral edge. The ventral clavi point obliquely inwards in an apertural direction, as in the juvenile stage. The abapical parts of the clavi are connected across the venter by forwardly curved, low folds, and the apical ends by straight to concave folds, thus forming a distinct, looped pattern over the venter.

Apart from the clavi and connecting ribs, fine intercalatory striae may occur, as in the holotype (Fig. 1A-C), and riblets may also appear as a series of bundled striae (Figs 1F-H, 3A-C). In the majority of specimens the ornament in the adult stage is prominent (Fig. 2B-D, H-L). One of the specimens, SAM-PCT 5696 (Fig. 3A-C), has similar, but very much weakened ornament at comparable size, and retains a rounded whorl section.

Specimen SAM-PCT 5695 (Fig. 3D) has the aperture preserved, with a ventral hood ornamented by fine striae.

The suture is relatively simple with a very small umbilical lobe (U), trifid lateral (L) and internal (I) lobes and bifid saddles (Fig. 4).

Discussion

The presence of distinct tubercles distinguishes *Umgezaniceras thieuloyi* from all other bochianitids, and it occupies a unique position within the sub-family Bochianitinae.

The simplicity of the sutures and small umbilical lobe (U) are reminiscent of *Baculina rouyana* (d'Orbigny), but, as Wiedmann (1962) has successfully shown, generic separation based on sutural complexity alone is difficult to maintain.

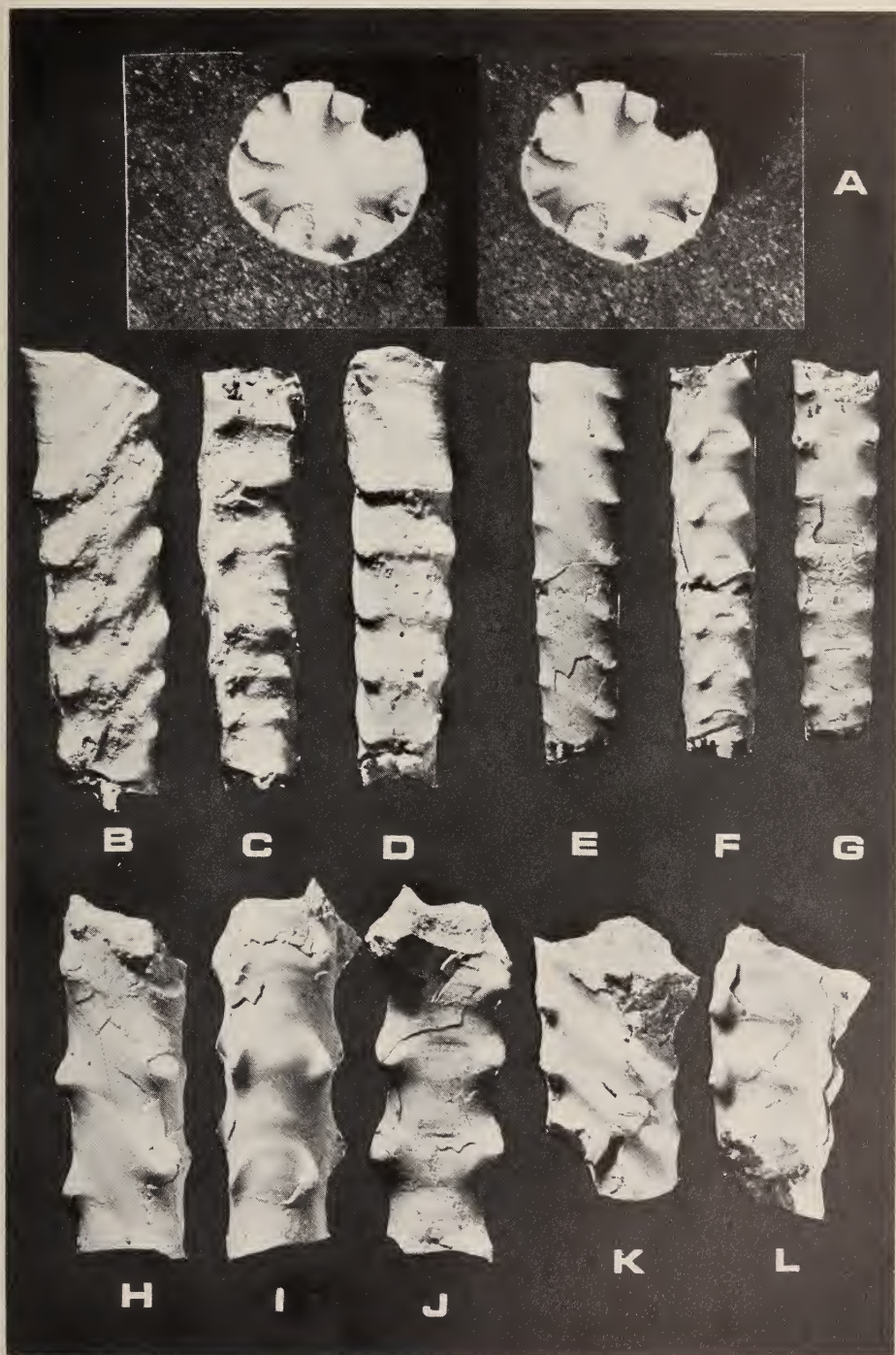


Fig. 2. *Umgazanicerias thieuloyi* gen. et sp. nov.

A. Paratype SAM-PCT5706, view of septal face, stereopair. B-D. Paratype SAM-PCT5695, lateral, ventral and dorsal views. $\times 2,5$. E-G. Paratype SAM-PCT5703, lateral, ventral and dorsal views. $\times 3,1$. H-J. Paratype SAM-PCT5701, lateral, ventral and dorsal views. $\times 2,6$. K-L. Paratype SAM-PCT5698, lateral and ventral views. $\times 2,7$.

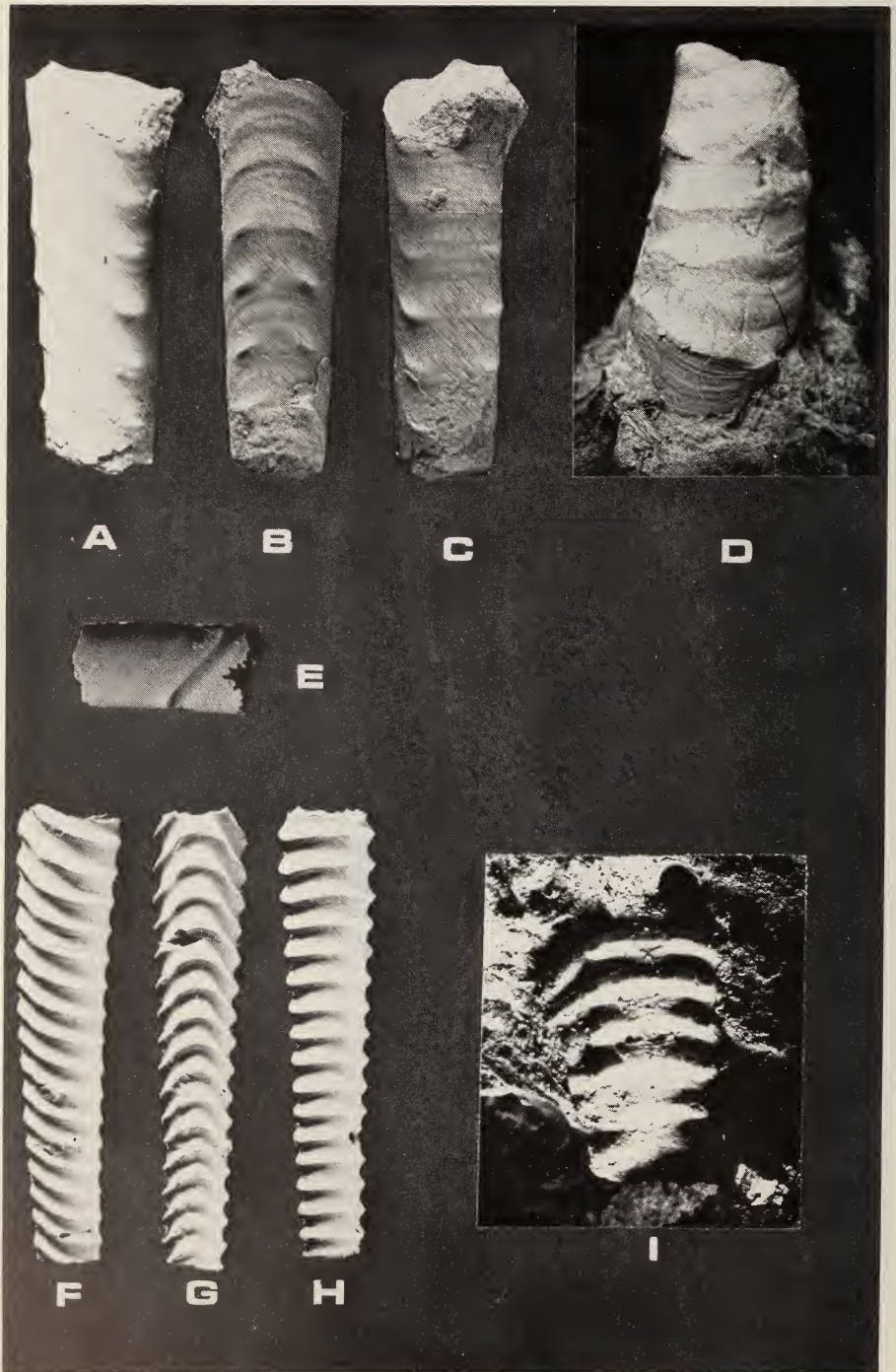


Fig. 3. A-C. *Umgazaniceras thieuloyi* gen. et sp. nov. Paratype, SAM-PCT5696, lateral, ventral and dorsal views. $\times 2,1$.

D. *Umgazaniceras thieuloyi* gen. et sp. nov. Paratype, SAM-PCT5695. Specimen with part of hooded aperture preserved. $\times 2,5$.

E. *Bochianites* cf. *renevieri* (Ooster, 1860). SAM-PCT5706. $\times 5$.

F-H. *Bochianites africanus* (Tate) SAM-PCU5706, figured for comparison. $\times 1$.

I. *Neohoploceras* sp. SAM-PCT5707. $\times 3$ approx.



Fig. 4. *Umgazanicerias thieuloyi* gen. et sp. nov. Suture line.

A specimen of the common Uitenhage form, *Bochianites africanus* (Tate, 1867) is illustrated for comparison as Figure 3F–H. The only other known South African bochianitid, *B. glaber* Kitchin (1908: 181, pl. 8 (figs 20–21)), is completely smooth, but is difficult to interpret, being monotypic and immature.

Genus *Bochianites* Lory, 1898

Bochianites cf. *renevieri* (Ooster, 1860)

Fig. 3E

Compare:

Baculites renevieri Ooster, 1860: 91, pl. 60 (figs 4–5)

Material

One fragment, SAM-PCT5706 in the South African Museum.

Description and discussion

The single septate fragment differs from the remaining material in the presence of a strong constriction and lack of ornament. It strongly recalls *Bochianites renevieri* from the Upper Valanginian of Merligen, Switzerland, and the authors compare it tentatively to this species.

Other comparable *Bochianites* species with distinct constrictions may be *B. weteringi* Boehm (1904: 26, pl. 2 (fig. 5a–b), text-fig. 3); *B. versteeghi* Boehm (1904: 27, pl. 2 (fig. 6a–c), text-fig. 4); and *B. goubechensis* Mandov (1971: 97, pl. 3 (figs 1–9)). The latter two species, however, both have relatively strong ornament as compared to the Umgazana specimen. *B. weteringi* is very similar, but difficult to interpret, being based on incomplete material.

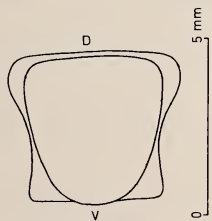


Fig. 5. *Umgazanicerias thieuloyi* gen. et sp. nov. Whorl section.

Family **Berriasellidae** Spath, 1922

Subfamily Neocomitidae Spath, 1924

Genus *Neohoploceras* Spath, 1939

Neohoploceras sp. indet.

Fig. 3I

Material

One fragment only, SAM-PCT5707, in the South African Museum.

Description and discussion

This small fragment of the venter of a strongly ribbed, normally coiled ammonite with well-developed ventral tubercles, appears to be a *Neohoploceras*, perhaps to be compared with the Uitenhage species *N. subanceps* (Tate) (1867: 150, pl. 7 (fig. 3a-b)); Spath 1930: 151, pl. 13 (fig. 4a-c)). J. P. Thieuloy has drawn the authors' attention to the straight and sublinear ribbing on the venter, which appears to be a significant feature of this genus.

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